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Claims

- 1. A method for protecting a progenitor cell against a cytotoxic agent comprising contacting the progenitor cell with a FRIL family member molecule and the cytotoxic agent, wherein the contacted progenitor cell is protected against cytotoxicity by the cytotoxic agent.
- 5 2. The method of claim 1, wherein the FRIL family member molecule is purified.
 - 3. The method of claim 1, wherein the progenitor cell is in a tissue.
 - 4. The method of claim 1, wherein the progenitor cell is a hematopoietic progenitor cell.
 - 5. The method of claim 1, wherein the progenitor cell is selected from the group consisting of a messenchymal progenitor cell, a hematopoietic stem cell, a hair follicle progenitor cell, a skin progenitor cell, a liver progenitor cell, and a gastrointestinal progenitor cell.
 - 6. The method of claim 1, wherein the progenitor cell is in an animal.
 - 7. The method of claim 6, wherein the progenitor cell is contacted by administering the FRIL family member molecule to the animal.
 - 8. The method of claim 7, wherein the FRIL family member molecule is administered to the animal with a pharmaceutically acceptable carrier.
 - 9. The method of claim 6, wherein the animal is a human.
 - 10. The method of claim 1, wherein the cytotoxic agent is selected from the group consisting of a chemotherapeutic and a radiotherapeutic.
 - 11. The method of claim 1, wherein the progenitor cell is contacted with the FRIL family member molecule before the cell is contacted with the cytotoxic agent.
 - 12. A method for protecting a progenitor cell in a patient against a progenitor cell-depleting activity of a therapeutic treatment in a patient, comprising administering a therapeutically effective amount of a FRIL family member molecule to the patient with the therapeutic treatment, wherein the progenitor cell in the patient is protected against the progenitor cell-depleting activity of the therapeutic treatment.
 - 13. The method of claim 12, wherein the patient is human.
 - 14. The method of claim 12, wherein the patient has cancer.
 - 15. The method of claim 12, wherein the therapeutic treatment is selected from the group

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consisting of a radiotherapeutic, a chemotherapeutic, and a combination of a radiotherapeutic and a chemotherapeutic.

- 16. The method of claim 15, wherein the chemotherapeutic is selected from the group consisting of cytarabine, doxorubicin, cisplatin, daunorubicin, paclitaxel, cyclophosphamide, and 5-fluorouracil.
- 17. The method of claim 12, wherein the FRIL family member molecule is purified.
- 18. The method of claim 12, wherein the FRIL family member molecule is administered to the patient with a pharmaceutically acceptable carrier.
- 19. The method of claim 12, wherein the patient is administered the FRIL family member molecule before administration to the patient of the therapeutic treatment.
- 20. The method of claim 12, wherein the patient is administered the FRIL family member molecule after administration to the patient of the therapeutic treatment.
- 21. A method for isolating a cell for repairing a tissue comprising contacting a population of cells with a FRIL family member molecule and isolating a cell specifically bound by the FRIL family member molecule, wherein the cell bound to the FRIL family member molecule is useful for repairing a tissue.
- 22. The method of claim 21, wherein the population of cells includes a progenitor cell.
- 23. The method of claim 21, wherein the population of cells is from a human.
- 24. The method of claim 21, wherein the cell bound by the FRIL family member molecule is a progenitor cell.
 - 25. The method of claim 21, wherein the progenitor cell is selected from the group consisting of a messenchymal progenitor cell, a hematopoietic stem cell, a hair follicle progenitor cell, a skin progenitor cell, a liver progenitor cell, and a gastrointestinal progenitor cell.
- 26. The method of claim 21, wherein the population of cells is selected from the group consisting of whole blood, umbilical cord blood, fetal liver cells, and bone marrow cells.